WHAT IS CLAIMED IS:

1. A beam homogenizer for forming a rectilinear laser beam on an irradiated surface, comprising:

two reflectors for splitting said laser beam.

2. A beam homogenizer of claim 1, wherein said rectilinear laser beam has a length of 600 mm or more on said irradiated surface.

3. A beam homogenizer for forming a rectilinear laser beam on an irradiated surface, comprising:

two reflectors for beam splitting, each of said reflectors including a plurality of reflective surfaces,

wherein any of said plurality of reflective surfaces is in agreement with a locus which is depicted by a part of a parabola when the part of the parabola is translated in a direction perpendicular to a plane containing said parabola.

4. A beam homogenizer of claim 3, wherein said rectilinear laser beam has a length of 600 mm or more on said irradiated surface.

5. A beam homogenizer for forming a rectilinear laser beam on an irradiated surface, comprising:

two reflectors for beam splitting;

one of said reflectors including a plurality of reflective surfaces, any of said plurality of reflective surfaces being in agreement with a locus which is depicted by a part of a parabola when the part of the parabola is translated in a direction perpendicular to a plane containing said parabola;

the other of said reflectors including a plurality of plane mirrors.

6. A beam homogenizer of claim 5, wherein said rectilinear laser beam has a

length of 600 mm or more on said irradiated surface.

7. A laser irradiation apparatus for forming a rectilinear laser beam on an irradiated surface, comprising:

a laser oscillator; and

two reflectors for splitting said laser beam, each including a plurality of reflective surfaces,

wherein any of said plurality of reflective surfaces is in agreement with a locus which is depicted by a part of a parabola when the part of the parabola is translated in a direction perpendicular to a plane containing said parabola.

8. A laser irradiation apparatus of claim 7, wherein said rectilinear laser beam has a length of 600 mm or more on said irradiated surface.

9. A laser irradiation apparatus of claim 7, wherein said laser oscillator is a member selected from the group consisting of an excimer laser, a YAG laser and a glass laser.

10. A laser irradiation apparatus of claim 7, wherein said laser oscillator is a member selected from the group consisting of a YVO_4 laser, a YLF laser and an Ar laser.

11. A laser irradiation apparatus for forming a rectilinear laser beam on an irradiated surface, comprising:

a laser oscillator;

a first reflector for splitting said laser beam, said first reflector including a plurality of reflective surfaces; and

a second reflector for splitting said laser beam, said second reflector including a plurality of plane mirrors,

wherein any of said plurality of reflective surfaces is in agreement with a locus

which is depicted by a part of a parabola when the part of the parabola is translated in a direction perpendicular to a plane containing said parabola.

12. A laser irradiation apparatus of claim 11, wherein said rectilinear laser beam has a length of 600 mm or more on said irradiated surface.

13. A laser irradiation apparatus of claim 11, wherein said laser oscillator is a member selected from the group consisting of an excimer laser, a YAG laser and a glass laser.

14. A laser irradiation apparatus of claim 11, wherein said laser oscillator is a member selected from the group consisting of a YVO_4 laser, a YLF laser and an Ar laser.

15. A semiconductor device comprising:

a semiconductor film on an insulating surface; and

a gate electrode over said semiconductor film with a gate insulating film interposed therebetween,

wherein said semiconductor film has been irradiated with a rectilinear laser beam formed by a beam homogenizer comprising two reflectors for splitting said laser beam.

16. A semiconductor device of claim 15, wherein said semiconductor device is an active matrix type EL display device.

17. A semiconductor device of claim 15, wherein said semiconductor device is one selected from the group consisting of a video camera, a digital camera, a projector, a goggle-type display, a personal computer, and a mobile telephone.

18. A method of fabricating a semiconductor device comprising thin film transistors, said method comprising the steps of:

forming a non-single crystalline semiconductor film over a substrate;

emitting a laser beam;

expanding said laser beam by either of two cylindrical parabolic mirrors and two parabolic mirrors;

altering a traveling direction of said expanded laser beam by a plurality of plane mirrors;

splitting said laser beam of the altered traveling direction by two beam-splitting reflectors each including a plurality of cylindrical parabolic mirrors;

combining said split laser beams into one rectilinear laser beam on an irradiated surface so as to homogenize an energy distribution of the rectilinear laser beam on said irradiated surface;

setting said substrate on a stage;

bringing a surface of said non-single crystalline semiconductor film into agreement with said irradiated surface; and

moving said stage relatively to said rectilinear laser beam so as to scan said non-single crystalline semiconductor film under irradiation with said rectilinear laser beam.

19. A method of fabricating a semiconductor device of claim 18, wherein an oscillator for emitting said laser beam is one selected from the group consisting of an excimer laser, a YAG laser, a glass laser, YVO_4 laser, a YLF laser and an Ar laser.

20. A method of fabricating a semiconductor device of claim 18, wherein said semiconductor device is an active matrix type EL display device.

21. A method of fabricating a semiconductor device of claim 18, wherein said semiconductor device is one selected from the group consisting of a video camera, a digital camera, a projector, a goggle-type display, a personal computer, and a mobile telephone.

22. A method of fabricating a semiconductor device comprising thin film transistors, said method comprising the steps of:

forming a non-single crystalline semiconductor film over a substrate;

emitting a laser beam;

expanding said laser beam by either of two cylindrical parabolic mirrors and two parabolic mirrors;

splitting said expanded laser beam by two beam-splitting reflectors each including a plurality of cylindrical parabolic mirrors;

combining said split laser beams into one rectilinear laser beam on an irradiated surface so as to homogenize an energy distribution of the rectilinear laser beam on the irradiated surface;

setting said substrate on a stage;

bringing a surface of said non-single crystalline semiconductor film into agreement with said irradiated surface; and

moving the stage relatively to said rectilinear laser beam so as to scan said non-single crystalline semiconductor film under irradiation with said rectilinear laser beam.

23. A method of fabricating a semiconductor device of claim 22, wherein an oscillator for emitting said laser beam is one selected from the group consisting of an excimer laser, a YAG laser, a glass laser, YVO_4 laser, a YLF laser and an Ar laser.

24. A method of fabricating a semiconductor device of claim 22, wherein said semiconductor device is an active matrix type EL display device.

25. A method of fabricating a semiconductor device of claim 22, wherein said semiconductor device is one selected from the group consisting of a video camera, a digital camera, a projector, a goggle-type display, a personal computer, and a mobile telephone.

26. A method of fabricating a semiconductor device comprising thin film transistors, said method comprising the steps of:

forming a non-single crystalline semiconductor film over a substrate;

emitting a laser beam;

expanding said laser beam by either of two cylindrical parabolic mirrors and two parabolic mirrors;

altering a traveling direction of the expanded laser beam by a plurality of plane mirrors;

splitting said laser beam of the altered traveling direction by a first beam-splitting reflector including a plurality of cylindrical parabolic mirrors, and a second beam-splitting reflector including a plurality of plane mirrors;

combining said split laser beams into one rectilinear laser beam on an irradiated surface so as to homogenize an energy distribution of the rectilinear laser beam on the irradiated surface;

setting said substrate on a stage;

bringing a surface of said non-single crystalline semiconductor film into agreement with said irradiated surface; and

moving the stage relatively to said rectilinear laser beam so as to scan said non-single crystalline semiconductor film under irradiation with said rectilinear laser beam.

27. A method of fabricating a semiconductor device of claim 26, wherein an oscillator for emitting said laser beam is one selected from the group consisting of an excimer laser, a YAG laser, a glass laser, YVO_4 laser, a YLF laser and an Ar laser.

28. A method of fabricating a semiconductor device of claim 26, wherein said semiconductor device is an active matrix type EL display device.

29. A method of fabricating a semiconductor device of claim 26, wherein said semiconductor device is one selected from the group consisting of a video camera, a

digital camera, a projector, a goggle-type display, a personal computer, and a mobile telephone.

30. A method of fabricating a semiconductor device comprising thin film transistors, said method comprising the steps of:

forming a non-single crystalline semiconductor film over a substrate;

emitting a laser beam;

expanding said laser beam by either of two cylindrical parabolic mirrors and two parabolic mirrors;

splitting said expanded laser beam by a first beam-splitting reflector including a plurality of cylindrical parabolic mirrors, and a second beam-splitting reflector including a plurality of plane mirrors;

combining said split laser beams into one rectilinear laser beam on an irradiated surface so as to homogenize an energy distribution of the rectilinear laser beam on the irradiated surface;

setting said substrate on a stage;

bringing a surface of said non-single crystalline semiconductor film into agreement with said irradiated surface; and

moving the stage relatively to said rectilinear laser beam so as to scan said non-single crystalline semiconductor film under irradiation with said rectilinear laser beam.

31. A method of fabricating a semiconductor device of claim 30, wherein an oscillator for emitting said laser beam is one selected from the group consisting of an excimer laser, a YAG laser, a glass laser, YVO_4 laser, a YLF laser and an Ar laser.

32. A method of fabricating a semiconductor device of claim 30, wherein said semiconductor device is an active matrix type EL display device.

33. A method of fabricating a semiconductor device of claim 30, wherein said

semiconductor device is one selected from the group consisting of a video camera, a digital camera, a projector, a goggle-type display, a personal computer, and a mobile telephone.

34. A method of fabricating a semiconductor device comprising thin film transistors, said method comprising the steps of:

forming a non-single crystalline semiconductor film over a substrate;

emitting a laser beam;

splitting said laser beam by two beam-splitting reflectors each including a plurality of cylindrical parabolic mirrors;

combining said split laser beams into one rectilinear laser beam on an irradiated surface so as to homogenize an energy distribution of the rectilinear laser beam on the irradiated surface;

setting said substrate on a stage;

bringing a surface of said non-single crystalline semiconductor film into agreement with said irradiated surface; and

moving the stage relatively to said rectilinear laser beam so as to scan said non-single crystalline semiconductor film under irradiation with said rectilinear laser beam.

35. A method of fabricating a semiconductor device of claim 34, wherein an oscillator for emitting said laser beam is one selected from the group consisting of an excimer laser, a YAG laser, a glass laser, YVO_4 laser, a YLF laser and an Ar laser.

36. A method of fabricating a semiconductor device of claim 34, wherein said semiconductor device is an active matrix type EL display device.

37. A method of fabricating a semiconductor device of claim 34, wherein said semiconductor device is one selected from the group consisting of a video camera, a digital camera, a projector, a goggle-type display, a personal computer, and a mobile

telephone.

38. A method of fabricating a semiconductor device comprising thin film transistors, said method comprising the steps of:

forming a non-single crystalline semiconductor film over a substrate;

emitting a laser beam;

splitting said laser beam by a first beam-splitting reflector including a plurality of cylindrical parabolic mirrors, and a second beam-splitting reflector including a plurality of plane mirrors,

combining said split laser beams into one rectilinear laser beam on an irradiated surface so as to homogenize an energy distribution of the rectilinear laser beam on said irradiated surface;

setting said substrate on a stage;

bringing a surface of said non-single crystalline semiconductor film into agreement with said irradiated surface; and

moving the stage relatively to said rectilinear laser beam so as to scan said non-single crystalline semiconductor film under irradiation with said rectilinear laser beam.

39. A method of fabricating a semiconductor device of claim 38, wherein an oscillator for emitting said laser beam is one selected from the group consisting of an excimer laser, a YAG laser, a glass laser, YVO_4 laser, a YLF laser and an Ar laser.

40. A method of fabricating a semiconductor device of claim 38, wherein said semiconductor device is an active matrix type EL display device.

41. A method of fabricating a semiconductor device of claim 38, wherein said semiconductor device is one selected from the group consisting of a video camera, a digital camera, a projector, a goggle-type display, a personal computer, and a mobile telephone.